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inquiry, however, whether all these species are natives of the desert and have acquired their special characters under the influence of their environment. "Is it the desert which has made them what they are, or are they perhaps only a selected few from among the widely differentiated forms which are everywhere abundant on more favorable soils?" Present distribution is the result of migration, and migration is directed by the given characters of the species. The qualities of organisms are the causes, and the distribution is the result.

Altogether, the book is full of pregnant suggestions, and should do much toward clearing up some of the evident confusion concerning the views of the distinguished author.—J. M. C.

Progressus Rei Botanicae

Genetics.—In the valuable series of botanical reviews published by the Association Internationale des Botanistes under the title *Progressus rei botanicae*, BATESON² traces the progress made in the study of heredity by the pedigree-method since the rediscovery of MENDEL's principles. For this discipline, which has so rapidly advanced to a place of prominence among the biological sciences, he proposes the name *genetics*.

The expressed object of the author, "to give an account of the progress in the study of heredity and variation which has followed the rediscovery of MENDEL's work," has been carried out in a full and complete way, except for the notable omission of all but a passing reference to biometrical work, which has also made good progress during the same period, and which also belongs, at least in large measure, in the field of genetics. This omission is evidently due to the desire on the part of the author to avoid everything of a controversial nature. The literature of Mendelian heredity is fully cited and discussed, and the bibliography appended includes 140 titles. Certainly no one could have been selected to present the side of genetics represented by Mendelian hybridization, who is in position to speak with more authority than BATESON, and this summary of the literature to the early months of 1906 is of great value to all interested in the general subject.—G. H. SHULL.

Immunity.—As an introduction to this part, by R. P. VAN CALCAR,² the fundamental principles of adaptability of plasmodia to rising concentrations of glucose and the general influence of chemotaxis are discussed. The reactions to toxic ferments by the cells of some plants, in consequence of which the cell walls increase in thickness, are considered in the sense of self-defense or immunity. Similar protective processes are described in reference to bacteria. From these general considerations the author proceeds to the more complex subject of immunity in the animal body. After briefly explaining the theory of phagocytosis of METCHNIKOFF, the immensely important work on hemolysis is given its proper

² BATESON, W., The progress of genetics since the rediscovery of Mendel's papers. *Progressus rei botanicae* 1:368-418. *figs.* 24. VAN CALCAR, R. P., Die Fortschritte der Immunitäts- und Specificitäts-Lehre seit 1870. *Idem*, pp. 533-642 *figs.* 20. Jena: Gustav Fischer. 1907. *M.* 18 the volume.

place as opening up new fields of research in immunity. The specificity of the phenomena accompanying the formation of agglutinins and precipitins is brought to the attention of the reader, and their diagnostic value is discussed *pro* and *con*. The crowning theory of immunity, EHRLICH's side-chain theory, is then taken up at some length and its points of contact with METCHNIKOFF's theory brought to light.

The difficult task of discussing the important subject of immunity has been ably executed and a large amount of information is given in this book. The author has done justice to the various workers who have contributed to the development of modern views, and has striven to bring into harmony to some extent the opposing opinions of different factions. The subject is much condensed, in some instances almost too much so, yet without seriously interfering with clearness and conciseness. The volume is admirably suited for those students who wish to obtain a general insight into the subject without going into detail. A complete list of the literature enables the student to investigate any particular subject he may be interested in.—P. G. HEINEMANN.

MINOR NOTICES

North American Uredineae.—In Part III of the first volume of this work, HOLWAY³ continues his presentation of Puccinia in the order of hosts, concluding Leguminosae and extending through Halorrhagidaceae. The species numbers extend from 84 to 120, including three new species on *Sidalcea*, *Viola*, and *Boisduvalia*. The clear text and the excellent plates reproducing photomicrographs of the spores make this monograph most attractive in appearance.—J. M. C.

Acta Horti Bergiani.—The fourth volume of this series,⁴ under the editorship of WITTROCK, is dedicated to the bicentenary of LINNAEUS. It contains seven papers, illustrated by 24 plates, many of them handsomely colored, and 176 text figures, and deals chiefly with forms under cultivation in the Bergian garden. VEIT B. WITTROCK (pp. 32) gives an account of the life and work of LINNAEUS, illustrated by three portraits. H. DAHLSTEDT (pp. 32. *pls.* 2. *figs.* 8) gives an account of seven new species of *Taraxacum* under cultivation. NILS SYLVEN (pp. 8. *pl.* 1) describes two *Senecio* hybrids. S. ALMQUIST (pp. 88. *pl.* 1. *figs.* 84) describes numerous forms of *Rosa*, many of them called mutations. GUST. O. A: N MALME (pp. 16. *pls.* 4) describes forms of *Victoria cruziana*. ERNST ALMQUIST (pp. 92. *figs.* 66) describes and illustrates a surprising number of elementary species of *Capsella Bursa-pastoris*. VEIT B. WITTROCK (pp. 187. *pls.* 13. *figs.* 18) shows that *Linnaea borealis* is an exceedingly polymorphic and polychromic species, the latter fact appealing strikingly to the eye in the eight handsomely colored double plates, nearly 150 new forms being described.—J. M. C.

³ HOLWAY, E. W. D., North American Uredineae. Vol. I, Part III. *pls.* 24-36. Minneapolis, Minn. 1907.

⁴ Kungl. Svenska Vetenskaps-Akademiens Trädgård Bergielund. Stockholm. 1907.